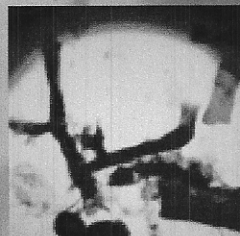
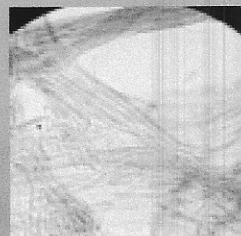
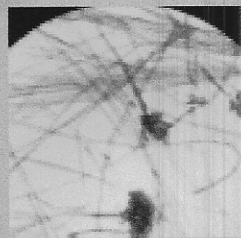
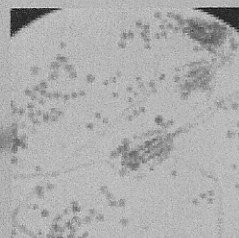
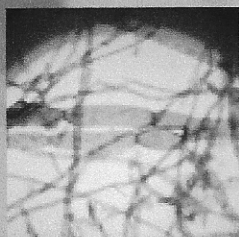


Detection of Mold and Mycotoxin Antibodies and DNA

in Blood, Saliva and
Lung Secretions



IMMUNOSCIENCES LAB., INC.



IMMUNOSCIENCES LAB., INC., 8693 Wilshire Boulevard, Beverly Hills, CA 90211, phone 310-657-1077, fax 310-657-1053, www.immunoscienceslab.com

Corporate Profile

IMMUNOSCIENCES LAB., INC. Changing the Practice of Medicine

Description

Immunosciences Lab., Inc. (ISL) is a leading California-based and -licensed clinical laboratory and research facility. The company analyzes complex diseases that directly or indirectly involve the human immune system. Through its unique diagnostic testing, ISL helps physicians diagnose and treat diseases associated with immune function disorders such as cancer, arthritis, chronic fatigue syndrome, and multiple sclerosis.

Services offered by ISL include: comprehensive immune system evaluation, lymphocyte immune function testing, natural killer cell activity, programmed cell death and detection of bacterial, viral and parasitic antibodies and genomes by ELISA and molecular technique (PCR). ISL specializes in identification of biomarkers for special vulnerability to cancer by detection of selected signs of precancerous damage in the body. This breakthrough can provide clinicians with clues in order to attempt to use natural and synthetic compounds to intervene in early disease development, a strategy that could save millions of lives.

History

ISL was founded in 1988 by Dr. Aristo Vojdani to provide healthcare practitioners with a wide array of unique tests designed to assist clinicians in diagnosing the root cause of various complex diseases. For more than a decade, the company has made a name for itself with its cutting-edge research and medical diagnostics.

Function

ISL offers more than 500 tests scientifically designed to detect immune system disorders induced by toxic chemicals and infectious agents. Physicians throughout North America, South America, Europe and Australia have access to experienced ISL client service representatives who are fully informed about the company's testing options, methodologies and turn-around time. ISL can provide medical practitioners with supplies (test requisition forms, mailers and blood-drawing tubes), copies of test results with interpretation, and reprints from the original publications in scientific journals.

Philosophy

At ISL, innovative laboratory testing, superior quality and customer satisfaction are top priorities. ISL is dedicated to the research and development of new biomarkers that will offer detection and prevention of chronic illnesses at the earliest possible stages.

Quality Assurance

Participation in independent quality assurance programs, such as the College of American Pathologists, is an extension of ISL's dedication to accuracy and precision during laboratory testing. The company is licensed by the United States Department of Health and Human Services to perform interstate testing.

Research

Scientists at ISL are specialists in molecular biology, immunology, and pathology. They use advanced research techniques to help further the early diagnosis, prognosis, and treatment of chronic illnesses induced by toxic chemicals and infectious agents.

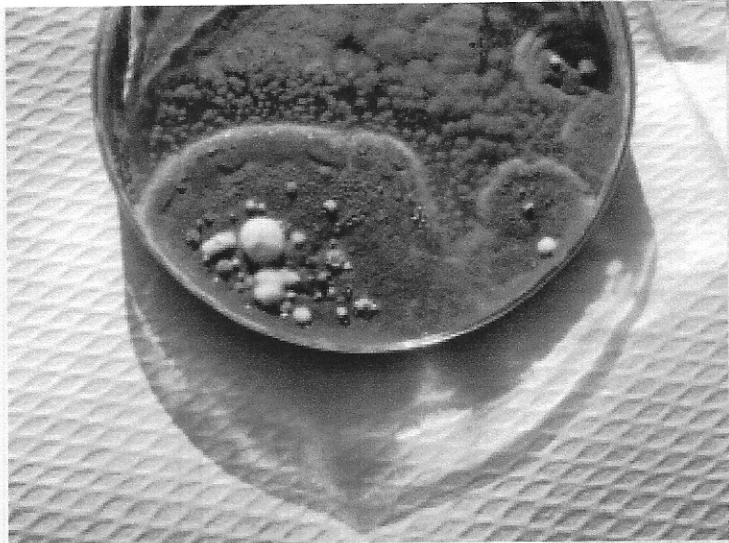
Detection of Mold and Mycotoxin Antibodies and DNA in Blood, Saliva and Lung Secretions

Aristo Vojdani, Ph.D., M.T.

Molds and fungi have been present on this planet for almost three billion years now. The majority of molds are quite harmless, but a few of them, under certain environmental conditions, may produce spores containing mycotoxins. Indeed, out of the many thousands of molds contaminating the air indoors, only a few have been found to possess allergens or allergy-inducing antigens. This means that even if individuals may be exposed to a multitude of molds found indoors, they will react only to those that produce mycotoxins.

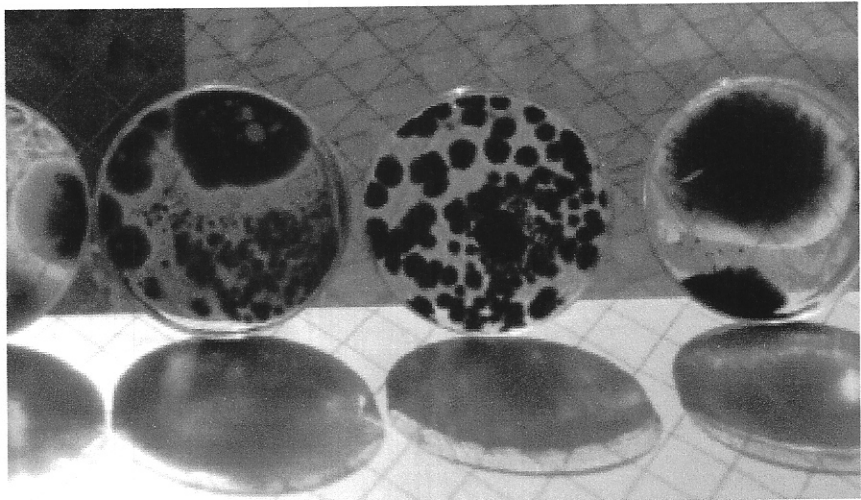
Many molds reproduce by making spores, which, upon achieving contact with a moist food source, can germinate and commence the production of a branching network of cells called hyphae. Molds have varying requirements for moisture, food, temperature, and other environmental conditions for growth.

In water-damaged buildings, environmental laboratory examinations utilizing swabs for counting viable microbial activity or air samples and total bioaerosols detected the presence of the following molds at the rate of 10-1000 fold greater than that found in the air outdoors:



• Alternaria	• Aspergillus	• Cladosporium
• Epicoccum	• Geotrichum	• Penicillium
• Phoma	• Pullularia	• Rhizopus
• Rhodotorula	• Chaetomium	• Stachybotrys

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Since molds grow in wet or moist indoor environments, it is therefore possible for people to become exposed to molds or their byproducts. This exposure can either be by means of direct contact with the mold-infested surfaces, or through the air that we breathe, if the mold byproducts are aerosolized.

Exposure to certain types of airborne molds and their spores can cause allergic reactions, episodes of asthma, and other respiratory complications in individuals who are genetically and immunologically predisposed. Greater impacts on health may occur when individuals are exposed to large doses of the chemicals produced by molds. These are more commonly known as mycotoxins.

Mycotoxins generated by fungal spores can enter the body through the respiratory tract, thereby inducing local toxicity. This cytotoxicity to the lungs may seriously affect the physical defense mechanisms of the respiratory tract, damage the alveolar macrophages, and decrease the ability of the air passages to filter bacteria, viruses, and other particulate matter from the air we breathe in. Neurotoxic symptoms (possibly related to airborne mycotoxin exposure in a heavily contaminated environment) have also been reported at very low levels.

Higher concentrations may induce toxic effects that range from severe irritation to immunosuppression and cancer. The immunosuppressive and cancer-inducing mechanism of mycotoxins causes damage by interfering with vital cellular processes, such as protein, RNA, and DNA synthesis. The combined outcome of these immunosuppressive and cytotoxic activities of mycotoxins (including T- and B-cell, helper or suppressor cells) increases the susceptibility of the exposed person to infectious diseases and possibly, cancer.

Health Effects of Toxigenic Molds and Mycotoxins

Molds can have a negative impact on human health. The specificity of the impact depends on the nature of the species involved, the metabolic products produced by the species, the amount and duration of the individual's exposure to the actual mold or its byproducts, and the specific susceptibility or state of health of the person exposed.

Health effects generally fall into seven categories:

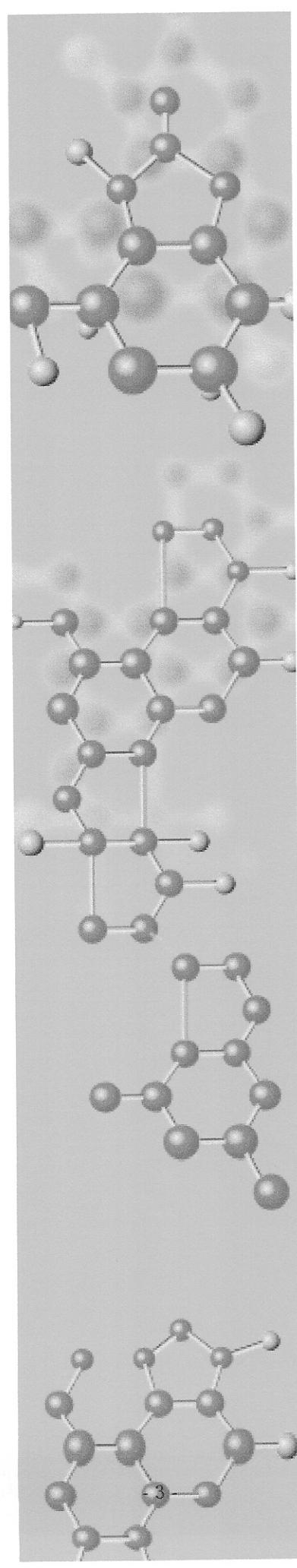
1. Type-1 Allergy or Immediate-Type Hypersensitivity
2. Delayed-Type Hypersensitivity Reaction
3. Infection
4. Mucous Membrane and Trigeminal Nerve Irritation
5. Adverse Reactions to Odor or Pseudoallergy
6. Toxicity or Neurotoxicity by Molds and Mycotoxins
7. Immunotoxicity Induced by Molds and Mycotoxins

Type-1 Allergy or Immediate-Type Hypersensitivity

The most common response to mold exposure may be allergy. People who are atopic, that is, people who are genetically capable of producing an allergic response, may develop allergic symptoms when their respiratory system or skin is exposed to mold or mold products to which they have become sensitized. Sensitization may occur in atopic individuals with sufficient exposure. This reaction is IgE-mediated and occurs within minutes after exposure to molds.

Delayed-Type Hypersensitivity Reaction

This type of reaction occurs hours or days after exposure to molds. It is mediated by IgG, IgM, IgA or immune complexes and is referred to as Type-2 and Type-3 allergic reaction. Finally, direct lymphocyte reaction to mold antigens may result in delayed type hypersensitivity or Type-4 allergic reaction. This reaction is mediated by lymphocyte reaction to mold antigens.



Infection

Infection from molds that grow indoors is not a common occurrence, except in certain susceptible populations, such as individuals who have compromised immune systems as a result of disease or drug treatment. A number of *Aspergillus* species that can grow indoors are known to be pathogens. *Aspergillus fumigatus* is a weak pathogen that is thought to cause infections (Aspergillosis) only in susceptible individuals.

Mucous Membrane and Trigeminal Nerve Irritation

A fourth group of possible health effects from fungal exposure derives from the volatile compounds (VOC) produced by means of fungal primary or secondary metabolism, and subsequently released into the air indoors. Some of these volatile compounds are continuously produced as the fungus consumes its energy source in the course of the primary metabolic processes. Such compounds, in low yet sufficient aggregate concentration, can irritate the mucus membranes of the eyes and the respiratory system.

Adverse Reactions to Odor or Pseudoallergy

Odors produced by molds may also adversely affect some individuals. The ability to perceive odors and respond to them is highly variable among people. Some individuals can detect extremely low concentrations of volatile compounds, while others require high levels of perception. An analogy to music may give perspective to odor response. What may be beautiful music to one individual could be unbearable noise to another. Some people derive enjoyment from odors of all kinds. Others may develop negative symptoms, such as headache, nasal stuffiness, nausea or even vomiting to certain odors, including perfumes, cigarette smoke, diesel exhaust, or moldy odors.

Toxicity or Neurotoxicity by Molds and Mycotoxins

The spores of many molds are capable of producing secondary metabolites, such as antibiotics and mycotoxins, some of which are extremely toxic. Depending on the route of entry, they may do damage to the skin, the lungs, the gut, the vascular system, the urinary system, the reproductive system, and the neuroimmunological systems. The spores from *Stachybotrys chartarum*, a mold capable of producing some of the most toxic substances known to mankind, can survive temperatures of up to 500 degrees Fahrenheit, as well as acid, caustics, and bleach without being destroyed.

In heavily contaminated environments, neurotoxic symptoms related to airborne mycotoxin exposure have been reported. Recently for example, highly abnormal brainstem auditory evoked response (BAER) was tested in adolescents with acoustic mycotic neuroma due to environmental exposure to toxic molds. This abnormal, evoked response correlated with objective findings, such as headaches, loss of memory, hearing loss, lack of concentration, fatigue, sleep disturbance, facial swelling, rashes, nosebleeds, diarrhea, abdominal pains, and respiratory difficulties. In addition, antibodies to neuron-specific antigens have been detected by our laboratory in the majority of patients exposed to toxigenic molds. This may be due to compromised blood brain barriers in the patients.